

动物遗传学

# POU1F1基因的遗传变异对南阳牛生长发育性状的影响

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收稿日期 2006-1-4 修回日期 2006-3-29 网络版发布日期 2006-10-17 接受日期

### 摘要

利用PCR-RFLP技术首次研究了南阳牛群体100个个体POU1F1基因多态性及其与体重、体尺等生长性状指标之间的相关性。结果表明, 南阳牛群体POU1F1基因座的451 bp 的PCR产物被限制性酶Hinf I 消化后表现多态性, 它们的等位基因A/B频率为: 0.465/0.535, 且处于Hardy-Weinberg平衡状态。同时, 南阳牛群体POU1F1-Hinf I 基因座不同基因型与体重、体尺等生长性状指标相关分析的结果表明: 南阳牛群体内BB与AB基因型个体在初生重、断奶前平均日增重、六月龄体重、体斜长和胸围以及十二月龄的体重、体高、体斜长和胸围指标上有显著差异, 且BB> AB (P<0.05); 群体内BB型个体在十二月龄体重指标上显著高于群体的AA型个体, 即BB> AA (P<0.05), 在其他各年龄段的各项体重和体尺指标上同样呈现出B等位基因高于A等位基因的一种趋势。初步认为BB基因型为优势基因型, 相应地B为优势等位基因, 对选择有正向效应, 提示POU1F1基因的B等位基因可能与高生长发育性状有关。

关键词 [南阳牛; PCR-RFLP; POU1F1基因; 多态性; 生长发育性状](#)

分类号

## Effect of Genetic Variations of the *POU1F1* Gene on Growth Traits of Nanyang Cattle

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### Abstract

PCR-RFLP was applied to analyze the effect of the genetic variations of the POU1F1 gene on growth traits of 100 Nanyang cattle. The results showed that the 451 bp PCR product digested with Hinf I demonstrated polymorphism in the population, which was at Hardy-Weinberg equilibrium. Moreover, the frequencies of alleles A/B in the Nanyang population were 0.465/0.535. The association of the variations of the POU1F1 gene with the growth traits in the population was analyzed. The following parameters were greater in individuals with a genotype BB than in those with an genotype AB: birth weight, average weight increase before ab lactation, body height at 12 months, body weight, body length, and chest girth at 6 months and 12 months (P<0.05). The body weight at 12 months was higher in the BB individuals than in the AA individuals (P<0.05). The body weight and body sizes also showed a trend of allele B > allele A in the other age groups. Therefore, the genotype BB maybe a dominant genotype and the allele B may be a dominant allele. These results imply that the allele B of the POU1F1 gene is likely to positively affect the growth traits.

Key words [Nanyang cattle; PCR-RFLP; POU1F1 gene; polymorphism; growth traits](#)

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